

Emergency Medicine 2018: Electronic trigger tool improves early identification, management and survivorship of emergency department severe sepsis patients - John J Kelly - Albert Einstein Medical Center Philadelphia, USA

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Background & Aim: Sepsis identification and timely management is critical, yet it can be difficult to efficiently assess the individual vital signs and lab values that indicate sepsis, as data may arrive at disparate times. We implemented an electronic sepsis tool as part of our EMR triggered by systemic inflammatory response syndrome and sepsis organ dysfunction criteria. The aim of our study is to determine if our electronic tool will result in increased identification of patients with sepsis, successful completion of the 3-hour bundle (blood cultures drawn, antibiotics given, 30 cc/kg normal saline) and improved survivorship compared to previous bedside checklist.

Method: We performed a prospective, observational study of patients in our ED between March 2016 and December 2017, before and after the implementation of an electronic screening tool in January 2016. In 2016, providers screened for evidence of SIRS/Sepsis and completed the 3-hour bundle using a bedside checklist tool. In January 2017, an electronic sepsis alert was implemented using: (Temp>38.4 C or <36 C; HR>110; Resp Rate>28, WBC>12,000/mm³, <4,000/mm³ or >10% bands), lactate level>2 mmol/l, Δ Creatinine≥0.5, INR≥ 2.0 and bilirubin>2.1 mg/dcl. The alert would prompt the use of an electronic checklist consisting of the 3-hour bundle requirements.

Outcomes measured included, the number of patients identified use of the electronic sepsis tool, confirmed cases of sepsis, compliance with the 3-hour bundle, in addition to survivorship.

Result: Between March 2016 and December 2016, a bedside checklist identified 143 patients meeting SIRS criteria and 137 patients were confirmed sepsis (96%). During this period, 63 (44%) had the 3-hour bundle completed. Between January 2017 and December 2017, the implementation of an electronic trigger tool identified 760 patients meeting sepsis alert criteria; 520 (68%) were confirmed cases of sepsis and 401 (77%) were compliant with the 3-hour bundle. Prior to the implementation of the electronic trigger tool survivorship for severe sepsis and/or septic shock was 65.23%. Following the implementation of the trigger tool survivorship improved to 73.25%.

Conclusion: The implementation of an electronic screening tool at our institution substantially increased identification of patients with potential and confirmed sepsis, increased compliance in the 3-hour bundle and survivorship. Based on our study, the electronic sepsis tool is a superior screening tool over a bedside tool and traditional reliance on providers' awareness and identification of patients with possible sepsis.